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IN THIS ISSUE

Controlling Tobacco Insects

Integration in Egg Industry

New Automatic Peanut Sampler

U. S. DEPARTMENT OF AGRICULTURE • AGRICULTURAL MARKETING SERVICE

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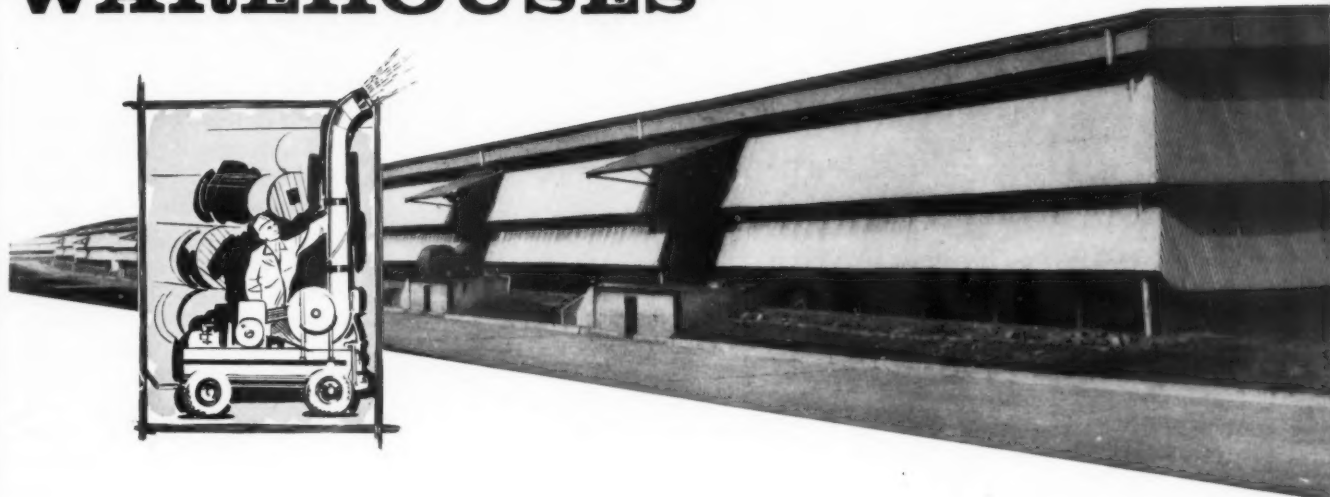
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control of insects in TOBACCO WAREHOUSES



by Joseph N. Tenhet

TOBACCO warehousemen have to work overtime if they want to catch cigarette beetles and tobacco moths on the wing.

These insects wait until the still of the night to take their evening constitutional. So, this is the time to get them with insecticide space treatments.

According to Agricultural Marketing Service scientists who have done considerable research in combatting insect infestation in tobacco warehouses, pyrethrum offers the most effective control in loosely constructed buildings that cannot be fumigated.

Because of the night-time activities of the insects (85 percent of the beetles emerging from the hogsheads fly about in the subdued light of early evening), mists and aerosols should be administered between 5 p.m. and midnight.

Concentrated dosages should be applied to the upper areas of the ware-

house where the beetles usually fly.

If properly administered, pyrethrum mists and aerosols kill about 93 percent of the cigarette beetles and practically all of the tobacco moths in flight. Beetles that survive deposit only half as many eggs as those not exposed to insecticides. Thus, although only 93 percent of the cigarette beetles are killed, the deposit of eggs is reduced 96 or 97 percent.

AMS scientists recommend a concentration of 0.2 percent pyrethrins for tobacco moths; 1 percent for cigarette beetles. For mist applications, the dosage should be 3 fluid ounces per 1,000 cubic feet of air space. Aerosols require slightly less— $2\frac{1}{4}$ to 3 ounces of the 0.2 percent pyrethrins per 1,000 cubic feet.

Weekly applications will control the tobacco moth, but more frequent applications are needed for the cigarette beetle. For the latter, one to three treatments are usually required and in some cases daily applications may be necessary.

One important reason why an aerosol sometimes does not keep cigarette beetles in check is that its distribu-

tion is not adequate. Often, it just doesn't reach the insects.

That's why night-time spraying and the proper concentration of pyrethrins are so essential.

A more effective means of controlling cigarette beetles may be obtained by fumigation. This treatment not only kills the insects in the air space but penetrates into the hogsheads, cases, or bales, affecting all stages of the insects within the tobacco.

However, a warehouse must be almost airtight to be effectively fumigated. This is not always practical or possible.

A full report on the AMS research with pyrethrum sprays and aerosols has been published in MRR-334, "Pyrethrum Mists and Aerosols for the Control of Insects in Tobacco Warehouses." This paper tells in detail how, where, and why pyrethrum treatments are effective, and where and why they may not be.

Single copies of the marketing research report may be obtained without charge from the Office of Information, U. S. Department of Agriculture, Washington 25, D. C.

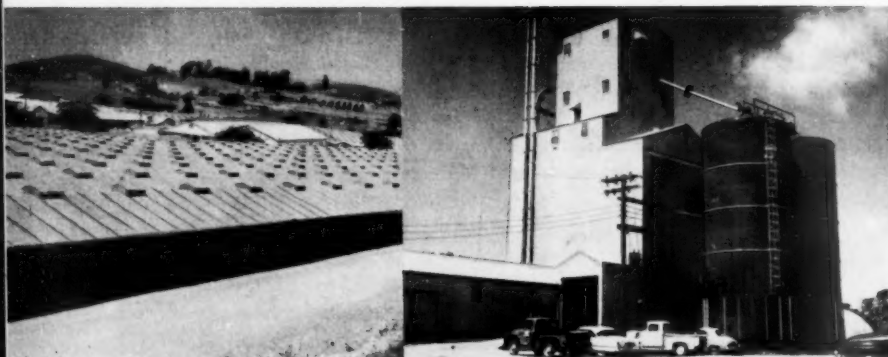
The author is a staff member of the Marketing Research Division of AMS. He is a station leader at the Stored Tobacco Research Laboratory in Richmond, Va.



INTEGRATED PRODUCTION and MARKETING of

EGGS

by Ralph L. Baker



VERTICAL integration—the coordinated production and marketing of farm products—is rapidly extending into the egg business. In the past few years, large integrated organizations have sprung up in the egg industry in many parts of the country.

To obtain factual information on this new development, Agricultural Marketing Service personnel recently interviewed the managers of 29 firms carrying on coordinated egg production and marketing programs. They also analyzed some of the factors responsible for the growth of these organizations and appraised their likely importance in future egg production and marketing.

The firms are located in all sections of the Nation. Seventeen of them, including 8 cooperative marketing associations, have contracts with producers who supply eggs under supervised programs of quality control. Seven others contract for the production of eggs from flocks supplied by the contractor and under his management supervision. The remaining 5 firms own and operate their own large-scale egg producing and marketing establishments.

The most highly integrated firm grows most of its grain, manufactures its feed, produces hatching eggs from its own supply flock, hatches flock replacements, makes much of its equipment, and produces, grades, cartons, and wholesales market eggs. The least integrated firm sells feed and produces eggs.

The study indicates that the trend toward a greater degree of vertical integration in egg production and marketing has grown out of many conditions. Some of these are:

- The opportunity to increase profits by lowering costs through more efficient coordination of both the production and marketing processes,
- The need for outside financing and technical assistance for many producers,
- An increasing awareness among

At the time of this study, the author was a staff member of the Marketing Research Division of AMS. He is now Professor of agricultural marketing, Pennsylvania State University.

retailers of the need for uniformly high-quality eggs,

- The increasing size of retail operations which gives retailers greater power in enforcing their demand,

- Inability of pricing methods to bring forth production of uniformly high-quality eggs and a uniform seasonal distribution of volumes and sizes of eggs, and

- The ability, in many instances, to obtain the profits from larger sales of feed by developing contractual arrangements.

While these conditions provided the opportunity for developing integrated production and marketing plans, it required many firms and individuals willing and able to assume the risks involved in trying out new methods and in financing extensive operations.

Programs which emphasize quality control have grown up in all sections of the United States. These stress production practices which result in uniformly high-quality eggs and premium payments to producers. Greatest emphasis is placed on producing eggs with a uniform yolk color and high interior and exterior quality. Handling and management programs include frequent gathering of eggs, proper cleaning and refrigeration on the farm.

Contract production programs are more prevalent in the southern States. These, too, emphasize production of high-quality eggs but, since the operators furnish producers with pullets and feed, they seek mainly to increase the efficiency of production.

In these programs, producers supply the housing, labor, litter, electricity, and other items necessary for production. They are paid a per-dozen fee on the eggs they produce. Last year, this ranged from 6 to 9 cents.

In addition, the producer generally receives incentive payments based on the number of eggs of acceptable quality and the feed consumption necessary per dozen of eggs.

In owner-integrated operations, producers own both the production and marketing facilities. They also own the birds and, in most instances, manufacture the feed.

In this way, they have close control over most segments of their operation. They can minimize overhead, selling and other costs, and move eggs into consumption channels quickly. In many instances, eggs from owner-integrated flocks are in



retail stores the day after they've been laid.

The largest flock of this type included in the study had 250,000 hens. At present rates of consumption, a flock of this size could supply all of the eggs used in a year by a city of 160,000 to 170,000 people.

New technology in egg production and marketing and its application to integrated operations will, no doubt, lower costs and increase the proportion of egg production accounted for by the larger scale integrated type of operation.

Even if this should mean lower egg prices, many operators who dovetail their production and marketing operations to take advantage of cost-lowering possibilities may have fairly satisfactory net incomes.

The development of integrated production and marketing of eggs will have different effects in different parts of the country. The only major surplus producing area now is in the Midwest where individual producers have access to low-cost feed. This gives them an advantage over producers in other areas.

Producers' costs in small flocks (1,000 to 5,000 hens) in the Midwest probably will continue to be at least as low as similar operations in any section of the country. If these producers use family labor, good quality-control practices, and participate in a well-coordinated production and marketing program, they will be difficult to displace. Their major disadvantage is their distance from eastern markets where they must sell their surplus eggs.

Lower costs and good quality-control programs have enabled southern producers to replace many of the midwestern eggs moving into their area. In fact, producers in the South may soon offer vigorous competition to both northeastern and midwestern producers for markets in the Northeast. Egg prices in the South are likely to decline relative to those in other regions as it moves from a deficit to a surplus position.

The Northeast, at present, is the only major deficit egg-producing area in the country. And its large cities are the market targets for many midwestern and southern programs. Producers in the area have the advantage of being close to large consumer markets, and this gives them a chance to provide better service to retailers.

Right now, some producers on quality-control programs in the Northeast receive higher prices at the farm for eggs than some contract production or owner-integrated operators in other areas receive at assembly-distribution plants. Northeastern prices are considerably higher than those received by midwestern quality-control producers.

The West Coast, on the other hand, has already shifted from a deficit to a basically self-sufficient egg production. Efficient, relatively large, low-cost units and a well-coordinated production and marketing system have brought about this increase in egg production.



A more detailed analysis of the growth and possible future of vertical integration in the egg industry has recently been published by the Agricultural Marketing Service. The report, MRR-332, is entitled "Integrating Egg Production and Marketing." Single copies may be obtained without charge by writing to the Office of Information, U. S. Department of Agriculture, Washington 25, D. C.

A way to reduce costs when . . .

LOADING OUT FRESH PRODUCE IN WHOLESALE MARKETS



by Robert K. Bogardus

A FORKLIFT truck, a belt conveyor, and a stack of pallets are a money-saving investment for service wholesalers who handle 100 or more tons of fresh fruits and vegetables daily.

According to Agricultural Marketing Service research, such firms can save about \$57 a day by replacing a 2-wheel hand truck operation with a mechanically operated line. In a year, this comes to \$14,250—enough to make any large-scale wholesaler stop and review his assembling and handling operations.

Today, many different types of equipment are used in the warehouse to move fresh fruits and vegetables. The value of each of these depends upon its load-carrying capacity and the methods of use. When the unit load method is employed with pallets and forklift trucks, the assembly operation can be performed at a lower cost than when any other method or type of equipment is used.

A warehouseman would have to pay about 88 cents a ton to assemble and transport fresh fruits and vegetables with a 2-wheel hand truck from the storage place to the order assem-

bly area. Using unit loads, an electric forklift truck, and 40" by 48" pallets, he could do the job for 25 cents.

The value of any combination of handling devices is, however, controlled by the less efficient units in the group.

Using a combination of 2-wheel and 4-wheel hand trucks, together with dead skids and low-lift platform trucks, a warehouseman pays about 64 cents a ton to assemble fresh produce. He could handle the same produce with the 4-wheel hand trucks alone for 39 cents a ton.

Along with efficient equipment, the wholesaler must employ a good system of handling his orders. Simplification is the key here. All waste time and effort must be eliminated.

Split orders (those made up of less than carton lots of several different commodities) are always a headache. But they, too, can be handled more easily with proper management.

Efficient methods can reduce the cost of split-package orders to \$4.38 a ton. Many warehousemen today find these costs running up to \$7.74 a ton.

In moving the produce from the order assembly area to the truck, the work pattern and the type of equipment also make a difference in warehousing costs. One wholesaler, who used a belt conveyor with a checker, two belt loaders, and a man stowing

packages in the truck, paid 66 cents a ton for this part of his operation. Another employed a 2-man crew, a belt conveyor and a transcriber instead of a checker, and held his costs to 46 cents a ton.

But no wholesaler performs only one of these jobs. He must base his costs on combined operations. So that's what AMS researchers did.

The least efficient—and therefore the most costly—assembly and loading out operation ran about \$1.41 a ton. This was in a warehouse using 2-wheel clamp trucks to assemble and move the produce into the truck in one continuous cycle.

Two other operators did the same job at a cost of 84 cents a ton. One of these used dead skids and electric low-lift platform trucks for assembly and a belt conveyor-transcriber system for truck loading. The other employed pallets and a forklift truck together with a belt conveyor, a checker, 3 belt loaders, and 2 truck stowers.

All of which proves that a well equipped and carefully planned warehousing operation pays off.

A high level of labor productivity may be obtained if the warehouseman establishes a balanced workload and a well organized handling system. Modern equipment is able to move large quantities of merchandise at a low cost **ONLY** if it is properly employed.

The author is a staff member of the Marketing Research Division of AMS. A copy of the full report, MRR, 282, is available free from the Office of Information, U. S. Department of Agriculture, Washington 25, D. C.



A NEW AUTOMATIC PEANUT SAMPLER

AN AUTOMATIC, spout-type sampler, developed by the Biological Sciences Branch, Marketing Research Division, AMS, takes the element of chance out of bulk peanut sampling.

Samples drawn by the new device are considerably more accurate and reliable than those obtained by the previously used hand-scoop method. Automatically drawn samples better indicate the overall quality of the load and thus provide a more true basis for determining grades.

Developed by Harold A. Kramer, agricultural engineer at Beltsville, Md., the new peanut sampler is designed for buying-point sampling. It fits near the head of a belt and bucket elevator, and samples are drawn at specified time intervals as the peanuts pour into the storage bins.

In this way, an unbiased sample is obtained, and the amount of foreign material in the load can be more ac-

curately indicated.

When taken by the hand-scoop method, samples are not always consistent in the percentage of foreign material shown. Stones and dirt sift to the bottom of the load and—depending upon where the scoop is made—the particular sample may be either more full or more free of foreign material than the load as a whole.

Although initially designed to handle farmers' stock peanuts, the automatic sampler can also be used on other commodities such as corn and soybeans. AMS personnel believe that any product normally handled with a belt and bucket elevator can be accurately sampled with the new spout-type sampler.

Use of the sampler for farmers' stock peanuts has already been approved by the Fruit and Vegetable Division of AMS and the Oils and Peanut Division of CSS. These

groups have okayed its use for official grading of both commercial purchases and storage under government loans.

In addition, the Department recommends that all handlers of farmers' stock peanuts who have or are planning to build bulk handling facilities install an automatic sampler in the line. USDA officials say it will speed up the marketing process, permit more accurate grading, and generally result in a more satisfactory marketing operation.

The sampler is a simple and relatively inexpensive piece of equipment. It has only one moving internal part—a deflector which at timed intervals diverts the peanuts (and whatever foreign material happens to be present) into the inspector's sample box.

The machine is powered by a one-third horsepower motor, and a commercially built timer controls the sample gathering operation.

Because of its simple construction, the sampler experienced no mechanical failures when tested throughout the entire 1958 harvesting season at a peanut-buying point in North Carolina.

Comparison tests with hand-type methods of sampling illustrated its accuracy and dependability. There was little variance in the samples obtained by the AMS machine. Two automatically drawn samples were much more alike than two samples drawn by hand scoop from the same load.

In additional tests conducted with specially prepared loads having known amounts of foreign material, the automatic sampler again demonstrated its superiority over the hand-scoop method of sampling.

All in all, the automatic peanut sampler offers many advantages over other sampling methods. Development of this new device is part of a broad program carried on by AMS to facilitate the flow of farm products to retail markets. This phase of the research is designed to find techniques, methods, and devices for the objective measurement of quality in agricultural commodities.

USDA'S TOBACCO INSPECTION SERVICE

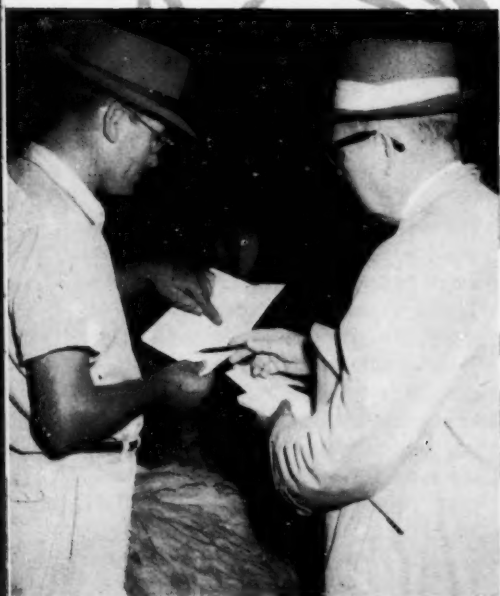
Grades tobacco soon after grower harvest

Yes, there is a difference in the tobacco you smoke. In fact, there are 125 to 150 grade differences noted by USDA in any one type of tobacco—even before the manufacturers mix their own individual blends.

It is these grade differences that decide the prices quoted in the market reports put out by the Agricultural Marketing Service in 13 tobacco growing areas.

Soon after the farmers deliver their tobacco to the auction warehouses, USDA tobacco inspectors grade it in accordance with the Tobacco Inspection Act. After the auction, USDA market news reporters assemble data on the grade, weight, and price of the tobacco sold. This is the information presented in the USDA market news.

These daily, or, in some instances, weekly reports keep the growers and the trade informed on the current prices received for the various grades of tobacco sold at auction.



Grower discusses tobacco market news report with Federal grading official.



Federal inspector (center) grades basket of tobacco on warehouse floor. This grade will indicate market price.



This is blending room in redrying plant. Inspector grades, prior to redrying, for tobacco under contract.

10

...wers it to auction warehouse



...ket...ured tobacco
...ind...market value.



Sales scenes like this are typical at auction markets. Information on sales later is summed up in USDA market news reports.



Tobacco market news reports are placed at convenient locations around auction warehouse, and growers are invited to take one.



...ant. Inspector certi-
...bacco... under loan.



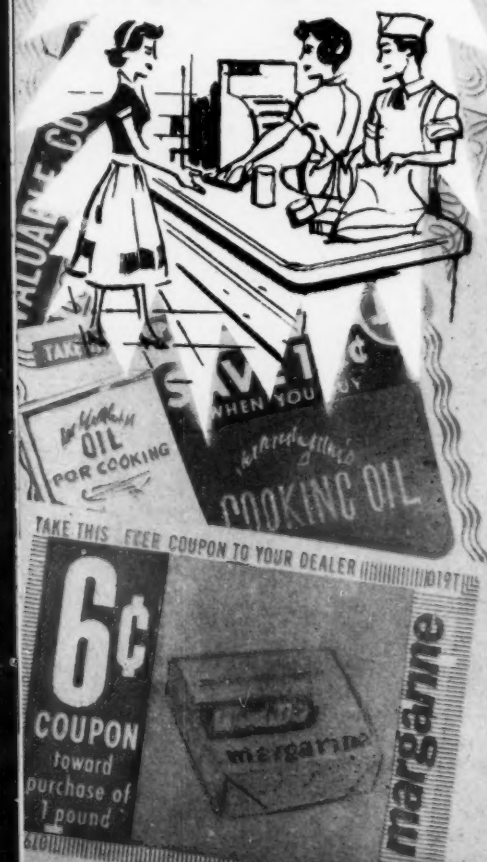
From the redrying machines, tobacco moves into hogsheads. They are then stored in giant warehouses (see cover photo).



Stripped hogsheads of redried flue-cured tobacco are inspected by prospective buyers before they go on sale at the warehouse.



Effect of **SPECIAL OFFERS** in Merchandising Food Fats and Oils



"Deals" cause shift in brands but do not increase total market for food fats and oils . . .

by Lynn H. Stockman and Wendell E. Clement

Coupon offers, 1-cent sales, and 2-for-the-price-of-1 deals have become a basic part of our Nation's aggressive merchandising system.

Just how effective are these methods of priming demand? Who takes advantage of consumer deals and how do they affect the overall sales of farm products in retail stores?

Answers to these and similar questions were obtained in a recent AMS study of the role "deals" play in influencing consumer purchases of food fats and oils.

Information for the research analysis came from a sample of 555 families in the metropolitan area of Chicago selected from a panel maintained by a Chicago newspaper company. These households reported their purchases of food products continuously during a 2-year period.

Researchers of the Market Development Branch of AMS and Northwestern University found that panel families practically never used deals for the purchase of butter, but used them more frequently in buying shortening, margarine, and salad and cooking oils. Seventeen percent of the shortening purchased involved deals; 6 percent of both margarine and salad and cooking oils was bought in this way.

Of those households who bought food fats and oils during the 2-year period under study, 54 percent used deals on 1 or more shortening purchases, 49 percent on margarine, and 28 percent on salad and cooking oils.

Few of these families were what might be considered regular or consistent "dealers." More than one-half of the households taking advantage of deals for margarine and shorten-

ing used no more than 1 a year, while 85 percent of the households who reported oil deals fell in this category.

There was, however, a small group of households who used deals repeatedly. For example, in the case of margarine, 10 percent of the households reported a total of 12 or more deals per family and accounted for more than 40 percent of the total number of margarine deals reported. Similar, although less extreme, relationships were observed for shortening and oils.

Thus it appears that the agricultural processor or manufacturer who employs consumer deals as a promotional device can expect a large part of the deals to be used by only a small percentage of all deal-using consumers. These families usually are white, large in size, high in income and educational level, and with a young homemaker.

To find out the effect of deals on the volume of products purchased by consumers, analysts compared the average monthly purchases per family of nonusers with those of occasional or frequent users. From this it could be seen that nondealing households tend to buy less per family than any other group. Also, families who use deals the most, purchase and spend the most for food fats and oils.

The increase in expenditures between groups was not so great percentage-wise as the increase in volume of purchases. This, no doubt, reflected the lower prices paid by those taking advantage of deal offers.

Because of the relatively few heavy-dealing families, the total market for food fats and oils did not grow appreciably as a result of special offers. The use of deals caused a temporary shift in purchases from one brand to another.

Dr. Stockman is Associate Professor of Marketing, Northwestern University, Evanston, Ill. Mr. Clement is a staff member of the Marketing Research Division of AMS.

Universal Cotton Standards Conference

by Andrew C. Robison

COTTON specialists from all over the world met in Washington, D. C., May 25-27 for the 12th Universal Cotton Standards Conference.

Here to discuss cotton grade standards for the coming 3 years, they represented cotton associations of the 11 Nations participating in the Universal Cotton Standards Agreement. Delegates came from Belgium, England, France, Germany, India, Italy, Japan, The Netherlands, Poland, Spain, and the United States.

These countries agreed in 1923—and every 3 years thereafter—to make U. S. grade standards for upland cotton (as established by the Agricultural Marketing Service of USDA) the basis for all of their U. S. cotton contracts.

By using "universal" standards, cotton manufacturers in Japan, India, or any other country can state exactly what quality of cotton they want to buy—and know that the seller understands their specifications. Middling white cotton means the same thing to each one of them, because each understands and uses this previously agreed-on standard to describe this particular quality of cotton.

Every 3 years, the cotton standards undergo re-examination. At this time, changes may be suggested and the standards altered.

When the conference met in 1956, copies of the standards for the following physical grades of white cotton were approved: Good Middling, Strict Middling, Middling, Strict Low Middling, Low Middling, Strict Good Ordinary, and Good Ordinary. Also,

copies of four physical grades of tinged cotton: Strict Middling, Middling, Strict Low Middling, and Low Middling.

A set containing each of these cotton standards was put in sealed boxes and deposited in the vaults of the U. S. Treasury Department. A second "reserve" set was kept by the Department of Agriculture. Similar sets of standards also were distributed among the signatory associations.

In May of 1959, when the conference again met, the official set kept in the Treasury vaults was removed and brought before the group. Here it was unsealed, placed on the conference table, and kept under guard throughout the meeting.

These standards, approved in 1956, were now matched against boxes of the same grades of cotton prepared by AMS experts for use during the coming season and the 3 years until the next conference.

Representatives from 14 foreign

and 46 domestic organizations made the comparisons. They quickly approved one set of the newly prepared standards as the official "guide" boxes for the 1959 conference.

The next job was to match additional boxes with these guide boxes. Four committees, each headed by an expert from the USDA, were selected.

Each committee carefully made comparisons—one box at a time. It worked painstakingly and deliberately, under the most ideal of laboratory situations.

As each box was passed as a true copy of the guide box for that particular grade, it was stamped "Approved at the Universal Cotton Standards Conference of 1959" and officially numbered. Boxes of the 11 different grades with the same numbers were then assembled into official sets.

Later, after some 1900 boxes had been compared and approved, the official set for the 1962 conference was selected by lot, sealed, and deposited in the Treasury vault. A second set again was placed in storage at the Department of Agriculture, and other sets selected (again by lot) for the signatory associations and for use in this country.

In this way, the 1959 universal cotton standards were obtained—through meticulous comparisons by cotton experts from all over the world.



The author is Chief of the Grading and Market News Branch, Cotton Division, AMS.



WHAT WOMEN EXPECT in Clothes and Fabrics

by Francena Nolan and Daniel B. Levine

CONTRARY to popular masculine opinion, a woman knows what she wants in clothing.

She wants style. She wants to look her best. And she wants a fabric that feels good.

These are some of the conclusions of a team of marketing researchers from Pennsylvania State University and the Agricultural Marketing Service of USDA who ventured to explore what goes on in a woman's mind when she is concentrating on a new dress. Over 2,000 housewives in York, Pa., were asked to express themselves on clothes and fabrics.

Research such as this helps the textile industry understand what the customer wants and why she buys it. In this way, the industry can better satisfy consumer preferences and increase the sale of farm-produced fibers.

Francena Nolan is an Associate Professor of Rural Sociology, Pennsylvania State University, and Daniel B. Levine is a Project Director in the Marketing Research Division of AMS.

One of the big questions in the mind of the average woman choosing a new dress is—will it wrinkle?

She also takes into account the color of the material and the way the fabric feels.

When it comes to price, she expects a more expensive dress to hold its shape better, last longer, and not wrinkle as much as a cheaper one. But most of all, she looks for better style and workmanship when she pays more money.

The housewife who shops for work and street dresses is practical minded. She wants to know whether the garment will shrink and how well it will clean. But when she has a party dress in mind, she is likely to let herself go. Color and style mean more to her in a "good" dress than durability.

In the wintertime, the housewife prefers a twill weave for street wear. She also likes piles and high weaves. A weave with a smooth surface but a lustrous appearance is her favorite

for special occasions in the winter, just as it is in the summer. Colorwise, she leans toward black and navy.

In the summer months, plain weaves are preferred for street wear. Broadcloth and sheer batiste are especially popular. Pastel shades, particularly blue, are big summer favorites.

By and large, the housewife is pleased with the last dress she bought, whatever the material or the price. If she was at all dissatisfied, it was that the dress wrinkled. Cotton, linen, and rayon are the worst for wrinkling, she says.

In addition, the homemaker considers nylon either too warm or too cool (depending upon the season). She says rayon tends to shrink and doesn't hold its shape; and she doesn't like the feel of wool on her skin.

All things taken into account, she has the least fault to find with cotton, voting it the most versatile fabric.

For summer use, the homemaker finds cotton appropriate for all occasions. She also liked it for winter use, along with wool, of course.

But her choice of clothing depends upon the age group she is in and how much money she has. And, the kind of clothes she chooses often determines the fabric.

Wool is more often the choice of the young woman with an above-average income. Rayon is preferred by the older woman with less money to spend. Cotton, however, is used widely by all groups.

Also, the younger, upper-income woman likes to wear skirts and slacks in the winter and shorts in the summer. This results in the cotton house-dress losing out in the younger wardrobe.

In general, the housewife thinks the fabric manufacturers are giving her the quality she wants. Although still concerned with shrinkage, color-fastness, and durability, she doesn't need to worry too much about getting these qualities in present-day cloth.

She would be happier, though, if technological ingenuity could solve the problem of wrinkles, too. Then she'd be free to concentrate on color and style.

by William S. Hoofnagle and Kenneth E. Anderson



The market for MEAT in the nation's schools

LIVESTOCK producers, processors, and distributors can look toward the Nation's public schools as an expanding market for their products.

Today, approximately 60,000 of the 106,000 public schools below college level offer some sort of lunch service.

As more and more food service facilities are built into new schools and older schools modernize to accommodate lunch programs, this market continues to grow. Already, from July 1957 to June 1958, our Nation's public schools used more than 182 million pounds of fresh and processed meat (not including poultry and fish).

Although some of this was bought and donated through the U. S. Department of Agriculture's National School Lunch Program, the major portion was purchased from local dealers. Altogether this meat had a wholesale value of \$83 million.

Information on the quantity of meat received by public schools, its total and per capita value, as well as a comparison of meat consumption in schools participating and not participating in the National School Lunch Program, was recently obtained by the Agricultural Marketing Service. Data came from a sample of 500 representative schools and were projected to indicate the national school lunch picture.

Most of the meat delivered to public schools between July 1957 and June 1958 was beef. About 109 million pounds of beef were used that year, along with 42 million pounds of luncheon meat, 27 million pounds of pork, 3 million pounds of variety meat, 329 thousand pounds of lamb, and 129 thousand pounds of veal.

Ground beef and frankfurters were the two most popular individual

items. Schools served nearly 84 million pounds of ground beef during the survey year and 28 million pounds of frankfurters.

Over 61 million pounds, or nearly three-fourths, of the ground beef was acquired locally. The balance came from supplies purchased by the USDA especially for the National School Lunch Program plus some carryover from the preceding school year.

Ground beef alone accounted for almost 43 percent of the total wholesale value of all meats delivered to public schools. Frankfurters ranked next in value, making up over 14 percent of the total.

In all, beef items represented nearly 60 percent of the wholesale value of school meat purchases and donations. Luncheon meats totaled 22 percent; pork, 16 percent; and variety meats, lamb, and veal, the remaining 2 percent.

When figured as a part of the total school food dollar, the value of meat and meat products ran about 14 cents. Six cents of this was for ground beef, 2 cents for frankfurters, 1 cent for cured ham, and approximately 5 cents for all other meats combined.

Interestingly enough, schools participating in the National School Lunch Program served more meat and had a larger meat budget than non-participating schools. About 8.6 pounds of meat per child was delivered to Program schools, while only 7.1 pounds per child went to all other schools having food services. Per capita value of meat in participating schools was \$3.93 compared with \$3.24 in nonparticipating schools.

Schools, for the most part, obtained their meat requirements directly from local wholesalers or processors. Arrangements were made through route salesmen or telephone orders.

Mr. Hoofnagle is Head of the Distribution Programs Research Section, Market Development Branch, Marketing Research Division, AMS. Mr. Anderson is a staff member of that section.

The PRODUCTION and MARKETING of COTTON in



by Edward J. Overby

RUSSIA is growing cotton in an area lying between 38 and 42 degrees North—good cotton.

Before our trip to Russia last fall, the U. S. cotton team found this a little hard to believe. In the United States, such a belt would run between Chicago and Louisville, an area well above our cotton producing South.

But in the desert regions of Soviet Central Asia, with the aid of long hot summer days and a modern irrigation system, cotton is growing abundantly. From this area comes 85 percent of the cotton produced in the Soviet Union.

To view how the Russians produce, harvest, gin, merchandise, and manufacture their cotton was the purpose of our visit to Russia. Five members of the U. S. Department of Agriculture and a representative of the National Cotton Council made the trip.

We flew to Moscow from Helsinki early in September and spent nearly 5 weeks in the cotton-producing areas and spinning mills of the Soviet Union.

The cotton area of Central Asia lies just above the borders of Iran, Afghanistan, and India. It is a relatively new cotton producing area. Although irrigated in some spots since time immemorial, it was not until the 1930's and the construction of a modern irrigation system that the

deserts of Central Asia really began to bloom.

Today, cotton production in Russia is very much like that in our western United States. In fact, there seems to be no shortage of water in Central Asia. By U. S. standards, the Russians use too much water on some fields, irrigating right up to the time of harvest—a practice which results in the production of much immature cotton.

Cotton production in the U.S.S.R. totaled about 7 million bales in 1958-59. Production has doubled in the past 10 years, and the plan for 1965 calls for a further increase of nearly 3 million bales.

As far as we could see, the Russians might well be able to meet this quota. They have the land, water, and labor potential.

If the country wishes to place the emphasis on increased cotton production by supplying the machinery for land leveling and by increasing ginning capacity and perhaps mill capacity, it probably will reach the goal of 10 million bales in 1965. In case it does, the Russian people and those of the Soviet bloc could well absorb the increase.

At present, cotton goods in Russian stores are expensive. We bought some yard goods which cost \$2 a meter (at the tourist rate of exchange of 10 rubles to the dollar); in the United States this same material would have sold for 40 cents. Out-of-reach pricing such as this is a form of rationing to discourage people from buying.

The Russian people would undoubtedly enjoy having the increased cotton production come to them as more cloth and clothes. But, it is not unlikely that some of this increased production will add to our woes in the export markets.

Cotton is big business in the Soviet Union. It is done on a grand scale. Planting and cultivation is largely mechanized. There is also much talk of mechanical harvesting, and we saw many harvesters. But even so, much of the cotton in Central Asia is picked by hand. Perhaps one reason for this is the fact that there has been much emphasis placed on check row planting and spacing has been narrowed to about 18 inches, making it difficult to operate mechanical harvesters.

Some insects and diseases are appearing in Russian cotton fields. These include boll worms and aphids. Neither boll weevils nor pink boll worms, however, are found here. Perhaps the greatest potential problem for cotton production in Uzbekistan is the threat of widespread Verticillium wilt damage.

The harvesting we saw in September was all by hand and mostly by women. The Soviet Union does a good job of harvesting. In picking, immature bolls are kept separate from sound cotton, and cotton is piled separately by quality at the end of each row. This sorting is the first step in providing a more homogenous product.

From the field, cotton is carried to a government procurement center where it is spread out on a macadam

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surface for sun drying. This drying period lasts for several hours, during which time the cotton is continuously raked or turned. In many places, drying is done on hard surfaced roads.

The cotton is then hauled to the gin which the government also owns. Here it either goes directly to the gin or is placed in a pile for later ginning. These piles are like large hay stacks and contain some 400 to 500 tons of seed cotton. Since the climate is dry with only 4 to 6 inches of rain a year, this open storage does not raise any problem. The Russians, however, do have provision for boring holes in the stacks for ventilation.

From the stacks, the cotton moves into the gins, which are in operation 10 or 11 months of the year. There are only 120 gins in the Soviet Union, but these produce 7 million bales annually. We have 6,800 gins in the United States with less than double their production.

Soviet gins are much like the U. S. gins of the 1930's. There is no cleaning equipment, and drying is a separate operation. However, the Russians abuse the cotton by too much speed and hard seed rolls. The output per saw is nearly twice the normal output of gins in this country, and the fiber shows the effect of this speed. Poor preparation and neps result.

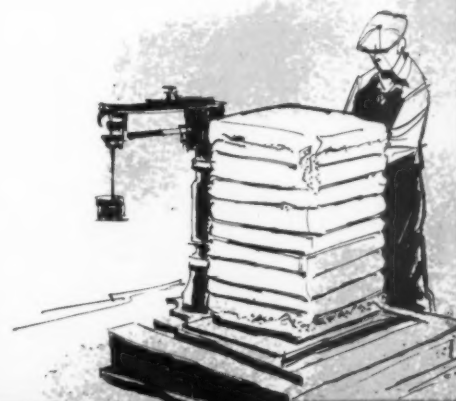
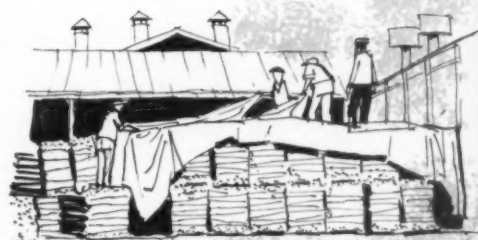
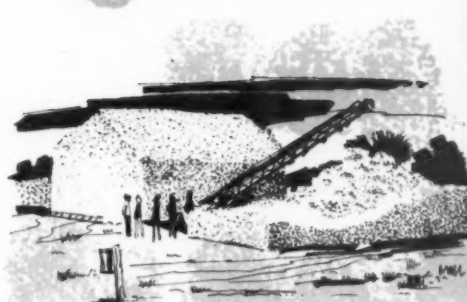
Bales are pressed to high density (32 pounds per cubic foot) at the gin. They are wrapped in cotton or burlap and are not cut for sampling. Samples for evaluation are taken at the press box, and the evaluation follows the bales to the mill.

Evaluation is a rather simple process. Since the State supplies the seed, and the cotton is of one variety, staple is quite uniform and little attention is given to this factor of quality. That is, they breed for length, but lots from each variety are usually uniform enough so that they are accepted as of a predetermined length.

Grade is decided largely by observation under a polarized microscope. These observations are then compared with a pamphlet published by the Central Research Bureau in Moscow. The Central Bureau has made numerous tests on each variety and developed coefficients for maturity, fineness, and strength as each is related to the appearance of the fiber under the microscope. Thus, in the field the operator only has to observe and compare with the book to obtain an indication of the value of a bale.

While this system would in no way satisfy our commercial transactions, it is not too bad for the use to which it is put in Russia. Here there is no conflict of interest or meeting between buyers and sellers. Cotton is of uniform quality and uniformly handled. When disputes occur, the Bureau in Moscow sends a person to test the cotton again and his word is final. He may give a financial allowance to the mill, but the government keeps the cotton.

Of course, it is simpler when the government is both buyer and seller, but I doubt if many interests in this country—farmers, ginners, merchants, or mills—would care much for the Soviet marketing machinery.



The Changing Market

Larger Egg Assembly Plants

The trend toward large-scale egg producing enterprises and large-scale food retailing organizations is resulting in the middleman also increasing the size of his operation.

Commercial egg assembly plants (firms handling more than 400 cases a week) now account for almost two-thirds of the total number of eggs sold off farms in the United States.

This figure is based on information obtained from a nationally distributed questionnaire sent out in 1957 by the Agricultural Marketing Service. Answers came from 13,885 firms whose volume accounted for 82 percent of all eggs sold from farms.

Here's what the replies showed:

- Assembly plants in the Middle Atlantic States had the largest volume per firm. About 600 companies handled over 21 million cases in 1957.

- Handlers in the western region of the North Central States assembled and sold the most eggs. These firms—3,617 in all—marketed 43 million cases.

- The largest number of plants was found in the eastern region of the North Central States. Here, 6,186 companies were in business in 1957.

- The Pacific States had the largest "large" plants. That is, there were 81 firms having a volume of 20,800 or more cases a year and these averaged 136,148 cases annually.

More details on the number, size, and location of U. S. egg assemblers may be found in AMS-311.

Pears and plums will be featured on the August Plentiful Foods list of the U. S. Department of Agriculture. Also in abundant supply this month will be peaches, lemons and limes, summer vegetables, small turkeys, eggs, vegetable fats and oils, and peanut butter.

Retail Pork Prices Down

U. S. Department of Agriculture economists foresee a lower retail price for pork during the next 12 months as a result of increasing hog slaughter.

This spring's pig crop, soon to start to market, is up 12 percent from a year earlier, and farmers plan an 8 percent increase in farrowings in the fall.

Already in May of 1959, retail pork prices were 7½ cents a pound less than May prices of a year ago.

Pork prices fell rather steadily from the peak of last summer until early spring of 1959. Ham sold for less than at any time since November 1957. Prices of pork chops and bacon declined until March, then rose slightly.

Retail beef prices, on the other hand, have remained fairly stable. There has been no advance in recent months, and there seems to be no indication of any large change the rest of this year.

Supplies of lower grade beef will be limited as stockmen continue to retain cows to build up their herds; production of fed beef will remain large.

Protecting Stored Grain

Synergized pyrethrum, applied as a protective spray or dust, offers good protection against insect attack and reinfestation in stored grain, scientists in the Marketing Research Division of AMS report.

For the past several years, entomologists in the Biological Sciences Branch have been studying the use of synergized pyrethrum for the protection of stored wheat and shelled corn. Tests still are in process at some Commodity Credit Corporation bin sites in the Midwest.

This research shows that the most effective protection results when pyrethrins are applied at a rate of 1.5 or more parts per million, with the synergist in a ratio of 1 to 10. Sprays and dusts containing synergized pyrethrum not only control present infestation but prevent reinfestation through 2 full summer seasons.

The effectiveness of the treatment is greatest during the first month. Although mortalities indicate that after this period the residue is below the toxic level, there is still a mass-repellent effect which lasts a much longer time.

None of the pyrethrum sprays affected the commercial grade of the grain. Corn, however, when treated with an inorganic dust (that is, pyrethrins on a talc carrier) was downgraded because of the grittiness left on the corn. Other formulations of synergized pyrethrum applied to shelled corn did not affect the grade.

